Accounting

Elective Full Year
Grade(s)11-12
Honors or A Level
Prerequisite:
None

This course stresses the basic principles necessary for an intelligent understanding of the books and records used in business: debits and credits; opening and closing books; classification and analysis of accounts; controlling accounts; trial balance; working papers, and the preparation of financial statements. As concepts are learned, students will use a computer application that provides the opportunity to use automated accounting software to record their work.

Advanced Math I

Elective Full Year
Grade(s)10-12
A Level
Prerequisite:
C+ in Integrated Algebra/Geometry I and II

This course in higher level mathematics will begin to explore multi-variable models, formalization of the concept of functions, function notation, domain and range. Students will use polynomial, exponential, and rational expressions to model relations among variables. Methods for solving equations and inequalities be studied including factoring, the quadratic formula, and algebraic proof. Geometric reasoning, patterns in variation, and families of functions will also be studied. The TI83 graphing calculator is highly recommended because it is used extensively.

Advanced Math II

Elective Full Year
Grade(s)11-12
A Level
Prerequisite:
C+ in Algebra II or Advanced Math I or C in College Review II and teacher recommendation

This course formalizes and extends important mathematical ideas drawn from the four strands of Algebra and Functions, Geometry and Trigonometry, Statistics and Probability and Discrete Mathematics. The focus will be on the Mathematics needed to be successful in college mathematics, Statistics, or Calculus courses. Topics studied will include the fundamental concepts underlying calculus and their applications including: rate of change, modeling motion, logarithmic, polynomial, and rational functions, conic sections. Emphasis will also be placed on manipulating symbolic representations of polynomial, rational, exponential, logarithmic, and trigonometric functions. Other topics will support further study in Probability and Statistics, including counting models, mathematical induction, binomial distributions, and statistical inference.

Advanced Placement Calculus

Elective Full Year
Grade(s)12
Advanced Placement
Prerequisite:
B in Honors Geometry; B in Honors Algebra II; B in Honors Advanced Math and teacher recommendation

This course consists of a full academic year of work in calculus and related topics comparable to courses in colleges and universities. The year will be devoted to topics in integral and differential calculus to prepare the student for the CEEB Advanced Placement Exam. A TI83 graphing calculator is required. Summer reading and/or a special project may be required. Students must take the AP exam in the spring.

Advanced Placement Statistics

Elective Full Year
Grade(s)12
Advanced Placement
Prerequisite:
B in Honors Geometry; B in Honors Algebra II; B in Honors Advanced Math and teacher recommendation

This course will investigate the major concepts and tools for collecting, analyzing, and drawing conclusions from data. The four major conceptual themes are: 1) Exploring data by observing patterns and departures from patterns 2) Planning a study by deciding what and how to measure 3) Anticipating patterns by producing models using probability and simulation 4) Making statistical inference by confirming models. Summer reading and/or a special project may be required. Students must take the AP exam in the spring. The TI83 graphing calculator is highly recommended because it is used extensively.

College Review Mathematics I

Elective Full Year
Grade(s)10-12
A Level
Prerequisite:
Integrated Algebra/Geometry I and II and teacher Recommendation

This course will reinforce and expand upon concepts presented in Integrated Algebra/Geometry I & II. Topics will include statistical analysis of data and how to represent real world situations with graphs and algebraic models. The course will also include a study of probability, functions, geometric transformations, three-dimensional geometry, and trigonometry. Students will build a foundation for success in Advanced Math I. Graphing calculators and programs such as Sketchpad will be used throughout the course as a tool for problem solving and to develop students' understanding. The TI83 graphing calculator is highly recommended because it is used extensively.

College Review Mathematics II

Elective Full Year
Grade(s)11-12
A Level
Prerequisite:
Geometry and Algebra II or Advanced Math I teacher recommendation

This course will reinforce and expand upon concepts presented in Integrated Algebra/Geometry II and Advanced Math 1. The emphasis will be on collecting and analyzing data, and solving problems and using mathematics to model real world situations. This course will prepare the college bound non-math major students for the required math courses he/she will encounter in his/her college career. Graphing calculators and programs such as Sketchpad will be used throughout the course as a tool for problem solving and to develop students' understanding. Students who have completed Advanced Math II are not eligible for this course.

Honors Advanced Math

Elective Full Year
Grade(s)11-12
Honors
Prerequisite:
B- in Honors Algebra II or A- in Algebra II and B- in Honors Geometry or A- in Geometry and teacher recommendation

This pre-calculus course prepares students for college mathematics and science courses. It includes functions and relations, circular functions and trigonometry, analytic geometry, polynomials of higher degree, exponential and logarithmic functions, and limits. Students excelling in this rigorous course are ready for Advanced Placement Calculus or Advanced Placement Statistics. The TI83 graphing calculator is highly recommended because it is used extensively.

Honors Algebra II

Elective Full Year
Grade(s)10-12
Honors
Prerequisite:
B- in Honors Algebra and Honors Geometry or A- in Integrated Algebra/Geometry II and B- in Honors Geometry and teacher recommendation

This course is an accelerated Algebra II. The topics covered are equations (linear, quadratic, systems), inequalities (systems, graphing), exponents, radicals, imaginary numbers (complex numbers), exponential and logarithmic functions, and trigonometric relations. Advanced problem solving techniques and applications using the above topics will be covered. Graphing calculators are used for investigative study. The TI83 graphing calculator is highly recommended because it is used extensively.

Honors Calculus

Elective Full Year
Grade(s)12
Honors
Prerequisite:
B- in Honors Advanced Mathematics or A- in Advanced Math II and teacher recommendation

This advanced math course is for students who have successfully completed four years of previous honors math classes - Algebra I, Algebra II, Geometry, and Advanced Math. The intent of the course is to teach the subject matter with a level of rigor suitable for the mainstream calculus student. This course is not designed for those wishing to take CEEB Advanced Placement Test. The student must have a strong background in trigonometry, coordinates, graphs, lines, functions, and limits. Topics include: functions and limits, differentiation, applications of differentiation, integration, applications of the definite integral, logarithmic and exponential functions, inverse and hyperbolic functions, and techniques of integration. A TI83 graphing calculator is recommended because it is used extensively.

Honors Geometry

Elective Full Year
Grade(s)9-12
Honors
Prerequisite:
B- in Honors Algebra I or A- in Integrated Algebra II and teacher recommendation

This course includes the applications of geometric principals related to the physical world. These principles include definitions of basic geometric terms and figures, reasoning, congruence, theorems and proofs, similarity, perimeter, area, volume, properties of polygons and circles, constructions and transformations of shapes and applications of right triangle trigonometry. Writing mathematical proofs is an integral part of this course. The Sketchpad is used to do explorations and derive mathematical concepts. The TI83 graphing calculator is highly recommended because it is used extensively.

Honors Statistics

Elective Full Year
Grade(s)12
Honors
Prerequisite:
B in Honors Geometry; B in honors AlgebraII, B in Honors Advanced Math or A- in Geometry, A- in Algebra II, A- in Advanced Math II and teacher recommendation

This course will investigate the major concepts and tools for collecting, analyzing, and drawing conclusions from data. The four major conceptual themes are: 1) Exploring data by observing patterns and departures from patterns, 2) Planning a study by deciding what and how to measure, 3) Anticipating patterns by producing models using probability and simulation, and 4) Making statistical inference by confirming models. Summer reading and/or a special project may be required. Students must take the AP exam in the spring. A TI-83 graphing calculator is required.

Integrated Algebra/Geometry I

Elective Full Year
Grade(s)9-12
A Level
Prerequisite:
Teacher recommendation

This course will investigate and build upon the basic foundations of Algebra and Geometry in an approach that will enable students to make the connections necessary to apply their skills in a variety of application based problems. The units of study will include patterns in data, patterns of change, linear models, patterns in space and visualization, exponential models and simulation models. Important ideas are continually revisited for students to make connections and develop a lasting understanding of the mathematics they are studying. The course is aligned with the Massachusetts Frameworks and by the conclusion of year 2, students will have completed all of the requirements of Algebra I and Geometry. Graphing calculators and programs such as Sketchpad will be used throughout the course as a tool for problem solving and to develop students' understanding. The TI83 graphing calculator is highly recommended because it is used extensively.

Integrated Algebra/Geometry II

Elective Full Year
Grade(s)9-12
A Level
Prerequisite:
Integrated Algebra/Geometry Year I or B- in Algebra I

This course is a continuation of Integrated Algebra/Geometry Year 1 course. Students will continue their studies with number sense, statistical analysis of data and patterns, relations, and functions, with more emphasis on quadratic and power functions. Topics will include matrix models, coordinate geometry, direct and inverse variation, power models, analysis and modeling of two-dimensional shapes, trigonometric functions, and probability. Students who have completed Integrated Algebra/Geometry I or a full year Algebra I course must complete this course before moving on to Advanced Math I or College Review I. The TI83 graphing calculator is highly recommended because it is used extensively.

Integrated Math and Science

Elective Semester or Full Year
Grade(s)10-12
A Level
Prerequisite:
Teacher Recommendation

This course integrates the study of science and related mathematical topics, ranging from algebra to geometry. This approach provides students with better insights into the relationship between science and mathematics and provides them the opportunity to see both as relevant and current. Concepts are developed in the laboratory, making regular class attendance vitally important. Good working habits and organizational skills will be stressed. This course is an interdisciplinary offering sponsored by the Math and Science Departments. This course may be taken for either one or two semesters.

Statistics

Elective Full Year
Grade(s)Grade 12
A Level
Prerequisite:
C- in Advanced Math II or B in College Review II and teacher recommendation

In this course students will develop an understanding of the vocabulary, symbols, concepts, and statistical procedures used in statistical studies. They will collect, organize, analyze, and summarize data, and make reliable predictions. The course will also include probability and probability distributions. Students will investigate real-life problems that require them to employ sampling techniques and see the relative applicability of statistics to solving problems. There will be an intense use of technology, particularly the TI83 graphing calculator.